

AMENDMENTS TO THE CLAIMS

1-55. (Canceled)

56. (Currently Amended) A safety stock amount calculation method, characterized by comprising the steps of:

calculating, using a processor configured to operate as a delivery time appearance probability calculation section, an appearance probability of a certain delivery time for each delivery time based on the a delivery time for a certain commodity required by a customer and its frequency;

calculating an appearance probability of a lead time of the commodity or its components of the commodity;

calculating, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes the a period between the a time when it has been predicted that the commodity stock will fall below a corresponding reorder point and the a time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

calculating an appearance probability of the effective lead time T_i for each effective lead time T_i based on the appearance probability of the customer's required delivery time and the appearance probability of the lead time; and

calculating a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time.

57. (Currently Amended) A The reorder point calculation method of claim 56, further comprising:

~~characterized by comprising~~ calculating a reorder point Q_{RO} based on a safety stock amount ss calculated by the safety stock amount calculation method as described in claim 56, a representative value DA from which ~~selected~~ including any one of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S .

58. **(Currently Amended)** The reorder point calculation method according to claim 57, characterized by further comprising:

calculating the reorder point Q_{RO} by ~~further~~ using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss , representative value DA of a demand, and marginal lead time L_M .

59. **(Currently Amended)** A safety stock amount calculation method ~~characterized by~~ comprising ~~the steps of~~:

calculating, using a processor configured to operate as a delivery time appearance probability calculation section, an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the a~~ delivery time for a certain commodity required by a customer and ~~its~~ frequency to create a probability distribution g_j of the customer's required delivery time;

calculating an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity to create a probability distribution h_k of the lead time;

calculating, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

calculating an appearance probability of the effective lead time T_i ~~for each effective lead time T_i~~ based on the probability distribution g_j of the customer's required delivery time and the probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time; and

calculating a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time.

60. **(Currently Amended)** The safety stock amount calculation method according to claim 59, ~~characterized in that wherein~~ the step of calculating the safety stock amount ss calculates the safety stock amount ss using the following equation:

$$ss = k\sqrt{\sum f_i^2 T_i \sigma_D}$$

61. **(Currently Amended)** The safety stock amount calculation method according to claim 59, ~~characterized in that wherein~~ the step of calculating the safety stock amount ss further uses a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0.

62. **(Currently Amended)** The safety stock amount calculation method according to claim 59, ~~characterized in that wherein~~ at least one of the probability distribution of g_j of the customer's required delivery time and the probability distribution h_k of the lead time is a discrete probability distribution.

63. **(Currently Amended)** A reorder point calculation method of claim 59, characterized by further comprising:

calculating a reorder point Q_{RO} based on a safety stock amount ss calculated ~~by the safety stock amount calculation method as described in claim 59,~~ a representative value DA ~~from which elected including any one~~ of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S.

64. **(Currently Amended)** The reorder point calculation method according to claim 59, ~~characterized by further comprising:~~

calculating the reorder point Q_{RO} by further using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss, representative value DA of a demand, and marginal lead time L_M .

65. **(Currently Amended)** A safety stock amount calculation device, ~~characterized by~~ comprising:

a storage unit, the storage unit including a non-transitory computer-readable recording medium storing a program; and

at least one processor configured to operates as:

a delivery time appearance probability calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the~~ a delivery time for a certain commodity required by a customer and ~~its~~ frequency;

a lead time appearance probability calculation section that calculates an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity;

an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the~~ a period between ~~the~~ a time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the~~ a time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

an effective lead time appearance probability calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ , based on the appearance probability of the customer's required delivery time and the appearance probability of the lead time; and

a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time.

66. **(Currently Amended)** A safety stock amount calculation device, ~~characterized by~~ comprising:

a storage unit, the storage unit including a non-transitory computer-readable medium storing a program; and

at least one processor configured to operates as:

a probability distribution of customer's required delivery time calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the a~~ delivery time for a certain commodity required by a customer and its frequency to create a probability distribution g_j of the customer's required delivery time;

a lead time probability distribution calculation section that calculates an appearance probability of a lead time of the commodity or ~~its components of the commodity~~ to create a probability distribution h_k of the lead time;

an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

an effective lead time probability distribution calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the probability distribution g_j of the customer's required delivery time and ~~the a~~ probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time; and

a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time.

67. (Currently Amended) A non-transitory computer-readable recording medium storing a safety stock amount calculation program that allows, in order to calculate a safety stock amount ss of a certain commodity, a computer to function as:

means for calculating, based on a customer's required delivery time and a lead time of the commodity or ~~its components of the commodity~~, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

means for calculating an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on an appearance probability of the customer's required delivery time calculated from the customer's required delivery time and its frequency and an appearance probability of the lead time of the commodity or its components of the commodity; and

means for calculating a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time.

68. **(Currently Amended)** A non-transitory computer-readable recording medium storing a safety stock amount calculation program that allows, in order to calculate a safety stock amount ss of a certain commodity, a computer to function as:

means for calculating an appearance probability of a certain delivery time ~~for each delivery time~~ based on the delivery time for a certain commodity required by a customer and its frequency to create a probability distribution g_j of the customer's required delivery time;

means for calculating an appearance probability of a lead time of the commodity or its components of the commodity to create a probability distribution h_k of the lead time;

means for calculating, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

means for calculating an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the probability distribution g_j of the customer's required delivery time and the probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time; and

means for calculating a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time.

69. **(Currently Amended)** A reorder point calculation device, ~~characterized by comprising:~~

a storage unit, the storage unit including a non-transitory computer-readable medium storing a program; and

at least one processor configured to operate as:

a delivery time appearance probability calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on the delivery time for a certain commodity required by a customer and ~~its~~ frequency;

a lead time appearance probability calculation section that calculates an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity;

an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

an effective lead time appearance probability calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the appearance probability of the customer's required delivery time and the appearance probability of the lead time;

a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for the commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the appearance probability of the effective lead time; and

a reorder point calculation section that calculates a reorder point Q_{RO} based on the safety stock amount ss , a representative value DA ~~from which elected~~ including any one of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S .

70. **(Currently Amended)** The reorder point calculation device according to claim 69, ~~characterized in that wherein~~ the reorder point calculation section calculates the reorder point Q_{RO} by ~~further~~ using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss , representative value DA of a demand, and marginal lead time L_M .

71. **(Currently Amended)** A reorder point calculation device, ~~characterized by comprising:~~
a storage unit, the storage unit including a non-transitory computer-readable medium
storing a program; and
at least one processor configured to operates as:

a probability distribution of customer's required delivery time calculation section that calculates an appearance probability of a certain delivery time ~~for each delivery time~~ based on ~~the a~~ delivery time for a certain commodity required by a customer and its frequency to create a probability distribution g_j of the customer's required delivery time;

a lead time probability distribution calculation section that calculates an appearance probability of a lead time of the commodity or ~~its~~ components of the commodity to create a probability distribution h_k of the lead time;

an effective lead time calculation section that calculates, based on the customer's required delivery time and lead time, an effective lead time T_i that denotes ~~the a~~ period between ~~the a~~ time when it has been predicted that the commodity stock will fall below a corresponding reorder point and ~~the a~~ time when the commodity has become available after the commodity had been ordered based on the prediction that the commodity stock would fall below a corresponding reorder point;

an effective lead time probability distribution calculation section that calculates an appearance probability of the effective lead time T_i ~~for each lead time T_i~~ based on the probability distribution g_j of the customer's required delivery time and the probability distribution h_k of the lead time to create a probability distribution f_i of the effective lead time;

a safety stock amount calculation section that calculates a safety stock amount ss based on a demand standard deviation σ_D for a certain commodity per unit of period, a safety coefficient k that denotes the level of a ratio of service S for demand, the effective lead time T_i and the probability distribution f_i of the effective lead time; and

a reorder point calculation section that calculates a reorder point Q_{RO} based on the safety stock amount ss , a representative value DA ~~from which elected~~ including any one of an average value, median, mode and experimental value of a demand per unit of period, and a marginal lead time L_M that denotes a minimum value of the effective lead time to be obtained after the cumulative value of the appearance probability of the effective lead time T_i has exceeded the ratio of service S .

72. **(Currently Amended)** The reorder point calculation device according to claim 71, ~~characterized in that wherein~~ the reorder point calculation section calculates the reorder point Q_{RO} by ~~further~~ using a demand frequency F_D that denotes an appearance probability of the period during which demand per unit of period is not 0 in addition to the safety stock amount ss , representative value DA of a demand, and marginal lead time L_M .